

MS-94 series – Lightweight Linear Potentiometers



Manufactured in UK

- **Rugged Construction**
- **Compact Design**
- **Sealed to IP67**
- **Long Life**
- **Excellent Linearity**
- **High Operating Temperature**



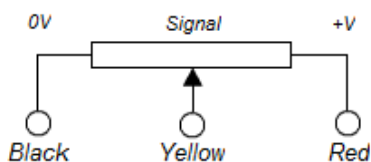
The MS-94 series of linear potentiometers are designed to withstand the harsh environments of motorsport, testing and industrial applications. Using proven 'Conductive Plastic' technology, the sensors offer high performance and reliability at operational temperatures up to +175°C

The small and lightweight, 9.4mm diameter MS-94 is available with stroke lengths up to 175mm, flange mount and sealing up to IP67.

Specifications

| | |
|---|---|
| Technology | Conductive plastic |
| Stroke lengths | 12.5mm – 175mm |
| Resolution | Essentially infinite |
| Max. Supply Voltage | 40VDC |
| Output Signal | Potentiometer (voltage divider) |
| Recommended Wiper Current | <10µA |
| Independent Linearity | ≤0.5% |
| Repeatability | ≤0.01mm |
| Operational Speed | 10m/s max |
| Electrical & Mechanical Life | >25 million operations (depending on installation and environmental conditions) |
| Housing Material | Aluminium |
| Shaft Material | Stainless steel |
| Sealing | IP54 (felt) ; IP65 (2 x Viton O ring) ; IP67 (PTFE U spring, Viton O ring) |
| Operating Temperature | -40°C - +150°C (short term +175°C) |

Electrical Connection

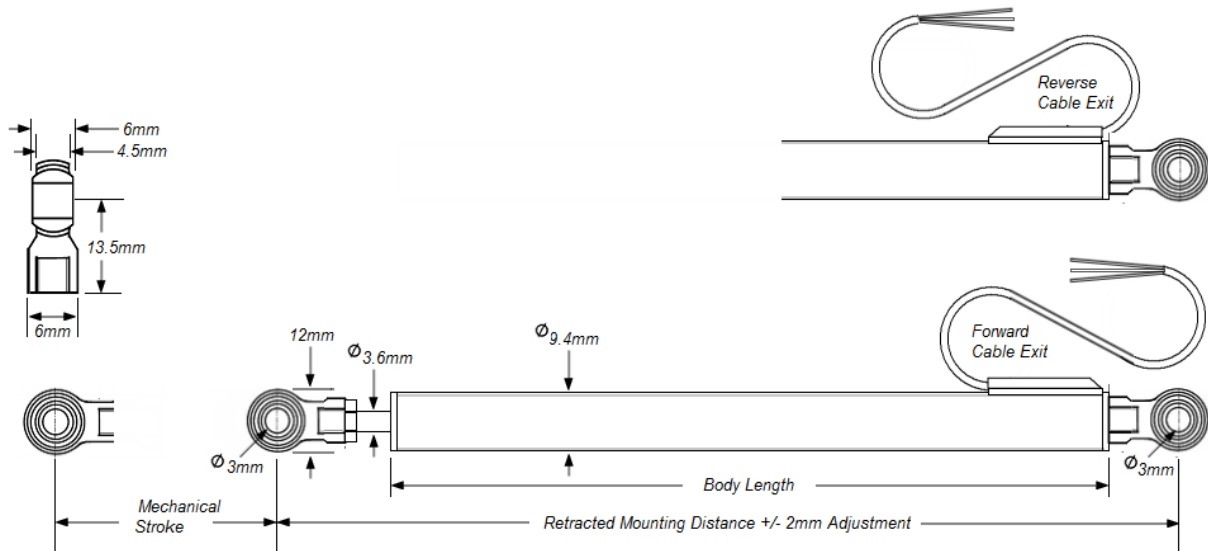


| Wiring | +Ve Supply | 0V Supply (GND) | Signal |
|----------------------|--|-----------------|--------|
| Single Output | RED | BLACK | YELLOW |
| Cable Type | 3 wire Raychem 55A, 26AWG, FDR 25 sleeve | | |
| Cable Length | Approximately 500mm | | |
| Output Signal | Output signal may be reversed by swapping connections to the Red & Black wires. DO NOT connect +Ve Supply to the Yellow wire, as this will cause damage to the sensor element. | | |

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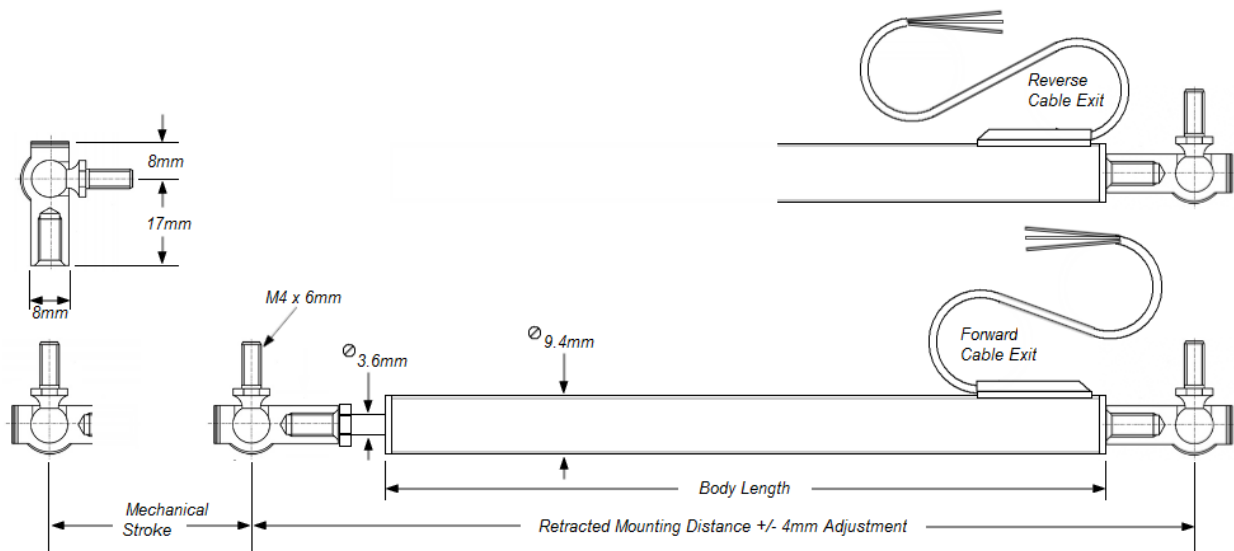
MS-94M-

| | | | | | | | | |
|----------------------------------|------------------------------------|-----|-----|-----|-----|-----|-----|------|
| Electrical Stroke (mm) | 12.5 | 25 | 50 | 75 | 100 | 125 | 150 | 175 |
| Retracted Mounting Distance (mm) | 86 | 98 | 123 | 148 | 179 | 204 | 229 | 254 |
| Min. Mechanical Stroke (mm) | 14.5 | 27 | 52 | 77 | 102 | 127 | 152 | 177 |
| Body Length (mm) | 53 | 66 | 91 | 116 | 147 | 172 | 197 | 222 |
| Approx. Weight Without Cable (g) | 15 | 17 | 21 | 25 | 29 | 33 | 37 | 41 |
| Resistance (K Ω +/-20%) | 0.8 | 1.7 | 3.4 | 5 | 6.7 | 8.4 | 10 | 11.7 |
| Mechanical Fixing | Rod End Bearings \varnothing 3mm | | | | | | | |



MS-94P-

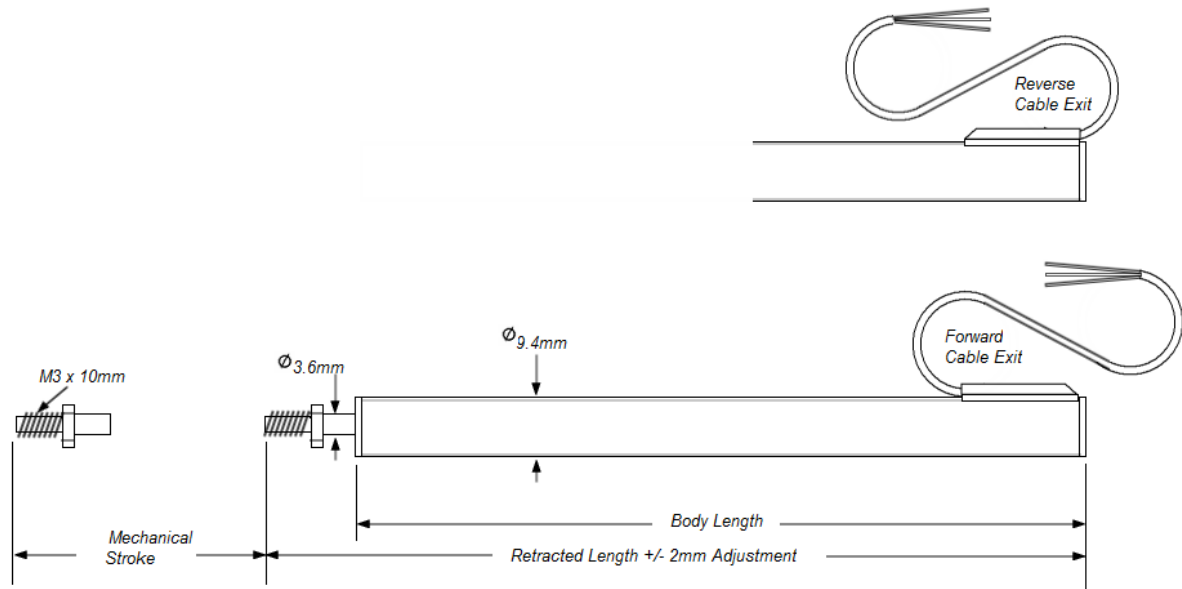
| | | | | | | | | |
|----------------------------------|---------------------|-----|-----|-----|-----|-----|-----|------|
| Electrical Stroke (mm) | 12.5 | 25 | 50 | 75 | 100 | 125 | 150 | 175 |
| Retracted Mounting Distance (mm) | 98 | 110 | 135 | 160 | 191 | 216 | 241 | 266 |
| Min. Mechanical Stroke (mm) | 14.5 | 27 | 52 | 77 | 102 | 127 | 152 | 177 |
| Body Length (mm) | 53 | 66 | 91 | 116 | 147 | 172 | 197 | 222 |
| Approx. Weight Without Cable (g) | 19 | 21 | 25 | 29 | 33 | 37 | 41 | 45 |
| Resistance (K Ω +/-20%) | 0.8 | 1.7 | 3.4 | 5 | 6.7 | 8.4 | 10 | 11.7 |
| Mechanical Fixing | Pop Joints M4 x 6mm | | | | | | | |



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MS-94A-

| | | | | | | | | |
|----------------------------------|------|------|-------|-------|-------|-------|-------|-------|
| Electrical Stroke (mm) | 12.5 | 25 | 50 | 75 | 100 | 125 | 150 | 175 |
| Retracted Length (mm) | 64.5 | 77.5 | 102.5 | 127.5 | 158.5 | 183.5 | 208.5 | 233.5 |
| Min. Mechanical Stroke (mm) | 14.5 | 27 | 52 | 77 | 102 | 127 | 152 | 177 |
| Body Length (mm) | 53 | 66 | 91 | 116 | 147 | 172 | 197 | 222 |
| Approx. Weight Without Cable (g) | 11 | 13 | 17 | 21 | 25 | 29 | 33 | 37 |
| Resistance (K Ω +/-20%) | 0.8 | 1.7 | 3.4 | 5 | 6.7 | 8.4 | 10 | 11.7 |



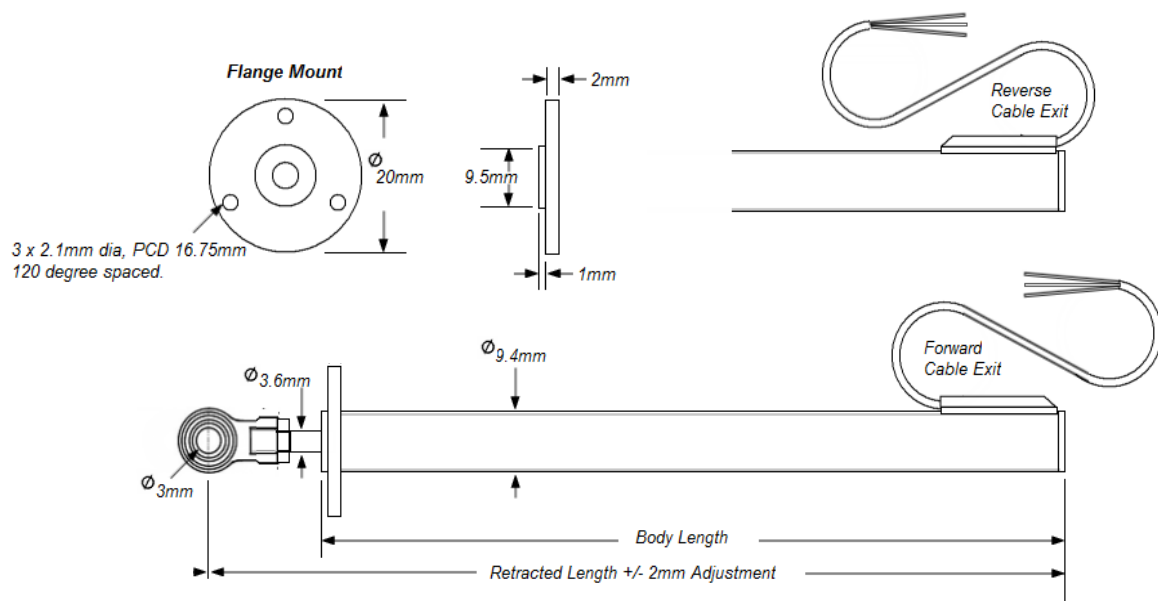
Flange Mount

Compatible with MS-94M, 94P and 94A – Refer to model for specifications, except below:

Rod End Bearing (MS-94M) or Pop Joint (MS-94P) is removed from the rear of the sensor

Retracted Length (mm) = Retracted Mounting Distance -13.5mm (MS-94M) , -17mm (MS-94P)

Body Length (mm) = +2mm to all models



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Ordering Information

Please use the chart below to construct your product code...

Sample Product Code: MS – 94M – 150 – 67 – F – 000

| | |
|---|---------|
| Series | MS - 94 |
| Mounting | |
| M = Rod End Bearings | |
| P = Pop Joints | |
| A = No Fixings | |
| Stroke Length | |
| Insert required length in mm | |
| 12.5 , 25 , 50 , 75 , 100 , 125 , 150 , 175 | |
| Seal Rating | |
| 54 = IP54 | |
| 65 = IP65 | |
| 67 = IP67 | |
| Cable Exit Direction | |
| F = Forward facing cable exit | |
| R = Reverse facing cable exit | |
| Options (compatible options may be selected, separated by – between codes) | |
| 000 = No options selected | |
| FL = Flange Mount | |
| SLV = Protective sleeve (refer to accessories below) | |
| DG6 = 2 x Body clamp (refer to accessories below) | |
| Lxxxx = Cable length in mm (500mm cable supplied as standard) | |

Accessories



Body Clamp DG6 For use with model MS-94A

Material Aluminium, rubber lining



Protective Sleeve SLV For use with models MS-94M & 94P

Material Carbon fibre, Peek Ø12mm

Since the suitability of these products depends upon a wide range of factors not in our control, the manufacturer expects and understands that you will conduct the testing and evaluation necessary to determine that these products are suitable for your application. Whilst every effort is made to ensure the above details are correct at the time of printing, the manufacturer reserves the right to make material changes, and / or technical changes without notification.